

AMENDMENTS TO THE CLAIMS

This Listing of the Claims will replace all prior versions, and listings of the claims in the application.

Listing of the Claims:

1.-124. (Canceled)

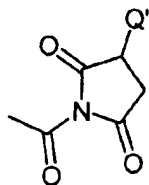
125. (Currently Amended) A pharmaceutical composition comprising a hapten-carrier conjugate, said pharmaceutical composition comprising

at least one hapten which is nicotine or a nicotine derivative, wherein the nicotine derivative is not cotinine; and

at least one carrier which is a pseudomonas exotoxin,

and wherein said hapten and said carrier are linked by a branch ~~selected from the group of~~ chemical moieties identified by CJ reference number ~~consisting of~~, and wherein the branch is:

CJ 0	Q
CJ 1	(CH ₂) _n Q
CJ 1.1	CO ₂ Q
CJ 2	OCO(CH ₂) _n Q
CJ 2.1	OCOCH=Q
CJ 2.2	OCOCH(O)CH ₂
CJ 2.3	OCO(CH ₂) _n CH(O)CH ₂
CJ 3	CO(CH ₂) _n COQ
CJ 3.1	CO(CH ₂) _n CNQ
CJ 4	OCO(CH ₂) _n COQ
CJ 4.1	OCO(CH ₂) _n CNQ
CJ 5	CH ₂ OCO(CH ₂) _n COQ
CJ 5.1	CH ₂ OCO(CH ₂) _n CNQ
CJ 6	CONH(CH ₂) _n Q
CJ 7	Y(CH ₂) _n Q
CJ 7.1	CH ₂ Y(CH ₂) _n Q
CJ 8	OCOCH(OH)CH ₂ Q
CJ 8.1	OCO(CH ₂) _n CH(OH)CH ₂ Q
CJ 9	OCOC ₆ H ₅
CJ 10	



, wherein Q' is a modified protein;

CJ 11 YCO(CH₂)_nCOQ; ~~and/or~~

CJ 11.1 $\text{CH}_2\text{YCO}(\text{CH}_2)_n\text{COQ}$,
and wherein for each branch, n is independently an integer; Y is S, O, or NH; and Q is
~~selected from the group consisting of:~~

- (i) —H;
- (ii) —OH;
- (iii) —CH₂;
- (iv) —CH₃;
- (v) —OCH₃;
- (vi) —COOH;
- (vii) a halogen;
- (viii) an activated ester or esters, such as 2-nitro-4-sulfophenyl ester and N-oxysuccinimidyl ester;
- (ix) a group or groups reactive toward the carrier, such as a mixed anhydride, acyl halide, acyl azide, alkyl halide, N-maleimide, imino ester, isocyanate, and isothiocyanate;
- (x) the carrier; ~~and/or~~
- (xi) another “branch” identified by its “CJ” reference number;

~~wherein said hapten-carrier conjugate elicits nicotine-specific antibodies in a human.~~

126. (Currently Amended) The pharmaceutical composition of claim 125, wherein n is an integer preferably selected from about 3 to about 20.

127. (Canceled)

128. (Previously Presented) The pharmaceutical composition of claim 125, wherein greater than one hapten is coupled to the carrier.

129. (Canceled)

130. (Canceled)

131. (Previously Presented) The pharmaceutical composition of claim 125, further comprising a pharmaceutically acceptable excipient.

132. (Presently Amended) The pharmaceutical composition of claim 125, further comprising an adjuvant.

133. (Previously Presented) The pharmaceutical composition of claim 132, wherein the adjuvant is alum or RIBI adjuvant.

134. (Previously Presented) The pharmaceutical composition of claim 133, wherein the adjuvant is alum.

135. (Previously Presented) The pharmaceutical composition of claim 134, wherein the alum is aluminum hydroxide or aluminum phosphate.

136. (Previously Presented) The pharmaceutical composition of claim 125, further comprising an auxiliary agent or supplementary active compound.

137. (Previously Presented) The pharmaceutical composition of claim 125 which is suitable for parenteral administration to a human.

138. (Previously Presented) The pharmaceutical composition of claim 125 which is suitable for oral, dermal or topical administration to a human.

139. (Canceled)

140. (Canceled)

141. (Canceled)

142. (Previously Presented) The pharmaceutical composition of claim 125, further comprising a pharmaceutically acceptable excipient.

143. (New) The pharmaceutical composition of claim 125, wherein n is 1.

144. (New) The pharmaceutical composition of claim 125, wherein n is 2.

145. (New) A pharmaceutical composition comprising a hapten-carrier conjugate, said pharmaceutical composition comprising

at least one hapten which is nicotine or a nicotine derivative, wherein the nicotine derivative is not cotinine; and

at least one carrier which is a pseudomonas exotoxin,

and wherein said hapten and said carrier are linked by a branch of chemical moieties identified by CJ reference number, and wherein the branch comprises:

CJ 11 $\text{YCO}(\text{CH}_2)_n\text{COQ}$;

and wherein n is independently an integer; Y is S, O, or NH; and Q is:

- (i) —H;
- (ii) —OH;

- (iii) —CH₂;
- (iv) —CH₃;
- (v) —OCH₃;
- (vi) —COOH;
- (vii) a halogen;
- (viii) an activated ester or esters, such as 2-nitro-4-sulfophenyl ester and N-oxy succinimidyl ester;
- (ix) a group or groups reactive toward the carrier, such as a mixed anhydride, acyl halide, acyl azide, alkyl halide, N-malcamide, imino ester, isocyanate, and isothiocyanate;
- (x) the carrier; or
- (xi) another "branch" identified by its "CJ" reference number.

146. (New) The pharmaceutical composition of claim 145, wherein n is 1.

147. (New) The pharmaceutical composition of claim 145, wherein n is 2.

148. (New) The pharmaceutical composition of claim 145, wherein n is an integer preferably selected from about 3 to about 20.

149. (New) A pharmaceutical composition comprising a hapten-carrier conjugate, said pharmaceutical composition comprising

at least one hapten which is nicotine or a nicotine derivative, wherein the nicotine derivative is not cotinine; and

at least one carrier which is a pseudomonas exotoxin,

and wherein said hapten and said carrier are linked by a branch of chemical moieties identified by CJ reference number, and wherein the branch comprises:



and wherein n is independently an integer; Y is S, O, or NH; and Q is:

- (i) —H;
- (ii) —OH;
- (iii) —CH₂;
- (iv) —CH₃;
- (v) —OCH₃;

- (vi) —COOH;
- (vii) a halogen;
- (viii) an activated ester or esters, such as 2-nitro-4-sulfophenyl ester and N-oxysuccinimidyl ester;
- (ix) a group or groups reactive toward the carrier, such as a mixed anhydride, acyl halide, acyl azide, alkyl halide, N-maleimide, imino ester, isocyanate, and isothiocyanate;
- (x) the carrier; or
- (xi) another "branch" identified by its "CJ" reference number.

150. (New) The pharmaceutical composition of claim 149, wherein n is 1.

151. (New) The pharmaceutical composition of claim 149, wherein n is 2.

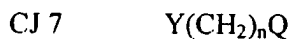
152. (New) The pharmaceutical composition of claim 149, wherein n is an integer preferably selected from about 3 to about 20.

153. (New) A pharmaceutical composition comprising a hapten-carrier conjugate, said pharmaceutical composition comprising

at least one hapten which is nicotine or a nicotine derivative, wherein the nicotine derivative is not cotinine; and

at least one carrier which is a pseudomonas exotoxin,

and wherein said hapten and said carrier are linked by a branch of chemical moieties identified by CJ reference number, and wherein the branch comprises:



and wherein n is independently an integer; Y is S, O, or NH; and Q is:

- (i) —H;
- (ii) —OH;
- (iii) —CH₂;
- (iv) —CH₃;
- (v) —OCH₃;
- (vi) —COOH;
- (vii) a halogen;

- (viii) an activated ester or esters, such as 2-nitro-4-sulfophenyl ester and N-oxysuccinimidyl ester;
- (ix) a group or groups reactive toward the carrier, such as a mixed anhydride, acyl halide, acyl azide, alkyl halide, N-maleimide, imino ester, isocyanate, and isothiocyanate;
- (x) the carrier; or
- (xi) another "branch" identified by its "CJ" reference number.

154. (New) The pharmaceutical composition of claim 153, wherein n is 1.

155. (New) The pharmaceutical composition of claim 153, wherein n is 2.

156. (New) The pharmaceutical composition of claim 153, wherein n is an integer preferably selected from about 3 to about 20.

157. (New) A pharmaceutical composition comprising a hapten-carrier conjugate, said pharmaceutical composition comprising

at least one hapten which is nicotine or a nicotine derivative, wherein the nicotine derivative is not cotinine; and

at least one carrier which is a pseudomonas exotoxin,

and wherein said hapten and said carrier are linked by a branch of chemical moieties identified by CJ reference number, and wherein the branch comprises:



and wherein n is independently an integer; Y is S, O, or NH; and Q is:

- (i) —H;
- (ii) —OH;
- (iii) —CH₂;
- (iv) —CH₃;
- (v) —OCH₃;
- (vi) —COOH;
- (vii) a halogen;
- (viii) an activated ester or esters, such as 2-nitro-4-sulfophenyl ester and N-oxysuccinimidyl ester;

- (ix) a group or groups reactive toward the carrier, such as a mixed anhydride, acyl halide, acyl azide, alkyl halide, N-maleimide, imino ester, isocyanate, and isothiocyanate;
- (x) the carrier; or
- (xi) another "branch" identified by its "CJ" reference number.

158. (New) The pharmaceutical composition of claim 157, wherein n is 1.

159. (New) The pharmaceutical composition of claim 157, wherein n is 2.

160. (New) The pharmaceutical composition of claim 157, wherein n is an integer preferably selected from about 3 to about 20.